

USSR

ISAKOV, P. K., et al., Teoriya i Praktika Aviatsionnoy Meditsiny (The Theory and Practice of Aviation Medicine), Moscow, "Meditina," 1971, 396 pp.

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11/11

AA0044809

Soviet Inventions Illustrated, Section II Electrical, Derwent,

R UR 0482

2/70

243874 ELECTRORECORDING MOVEMENT OF A TWO-PHASE
MEDIUM, involves using an electrorecorder
of movement of two distinctly different materials
e.g. pulverulent materials and gas-liquid mixtures
in pipes. The device contains three plates two
of which are placed parallel to the direction of
flow and between themselves, while the third plate
is mounted between the above two at an angle
inclined to the direction of flow, thus forming
a symmetrical differential condenser. One half of
the condenser's wide part is directed in the line
of flow. The recorder consists of a dielectric

AUTHORS: Rudnyy, N. M.; Kirichenko, Yu. Ye.

Institut Avtomatiki

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AA0044809

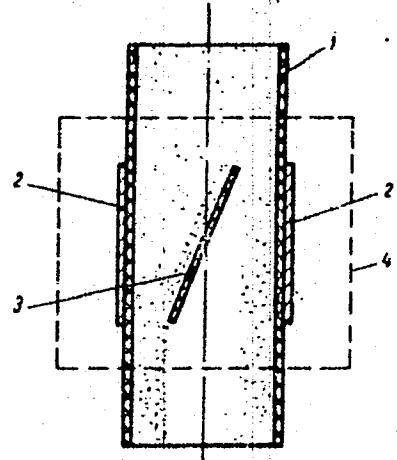
pipe line 1, two outside plates 2, inner plate 3 and an electric screen 4. The two similar plates are mounted on the dielectric pipe line symmetrically to one another. The third is at an angle between the two plates. The differential recorder is connected to a branch of the A/C the lead off of which is connected to the measuring voltage through the A/C booster. When the pulverulent mixture starts moving the inner plate divides the mass in two unequal parts with the result that in one of the condenser recorders receives more of the sandy mixture than the other, unbalancing the A/C bridge and causing the appearance of a signal, the intensity of which is related to the difference in volume of mixture passing through each opening of the pipe line.

2.3.67 as 1139485/18-10.N.M.RUDNYI & YU.E.KIRICHENKO
AUTOMATION INST. (6.10.69.) Bul 17/14.5.69. Class 42e
Int.Cl.G Olf.

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USSR

UDC 619:616.988.75-034.47:636.5

LAGUTKIN, N. A., CHERNYSHEV, V. V., BONDARENKO, I. M., KHARLAMOV, V. T.,
POLIKARPOV, B. V., BOLOTOV, B. V., NEZAMETDINOV, P. B., and RUDOEEV'SKAYA, G.A.

"Aerosol Vaccination of Poultry Against Newcastle Disease"

Moscow, Veterinariya, No 1, 1972, pp 54-56

Abstract: One-time aerosol vaccination of poultry against Newcastle disease produced strong and lasting immunity in almost 3 million animals of different ages and breeds and had no adverse effect on their productivity. The procedure required fewer workers and considerably less vaccine than for nasal or intramuscular vaccination. For example, some 60,000 to 90,000 5-day-old chicks could be vaccinated per day by three men. In 5- to 12-day old chicks hatched from the eggs of hens inoculated with live vaccine, transovarian passive immunity interfered with the development of postvaccinal immunity. Such animals required increased doses of the vaccine or revaccination 12 to 14 days later.

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USSR

UDC 619:578.085.23-576.858.27

RUDOBEL'SKIY, E. V., SERGEYEV, V. A., and POPOV, V. I., All-Union Scientific Research Institute of Veterinary Virology and Microbiology

"Accumulation of Hog Cholera Virus in Cell Cultures"

Moscow, Veterinariya, No 6, Jun 71, pp 38-40

Abstract: The production of large amounts of cell cultures and subcultures of testicular tissue from lambs and the accumulation of attenuated hog cholera virus strains in these cultures is described. Tissue from the testicles of 1-3 month old lambs was taken, ground and treated with trypsin. The cell suspensions obtained were decanted into a vessel containing calf serum and kept there at a temperature of 4°C for trypsin treatment. The cell suspensions were precipitated by centrifugation. The LK (lapinized strain K) and AK (attenuated strain K) of hog cholera virus were used, as well as forms adapted to cell culture (in 26 and 47 passages, respectively). Some 10 ml of the virus medium was introduced into the cell culture, the mixture was kept for 2 hours at 37°C, then treated with 190 ml of 0.5% hydrolyzate of lactalbumin in Hanks salt solution, with 4% lamb serum (pH 7.6). Virus accumulations were determined after 3, 7, 9, and 11 days on piglets which had not been immunized

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USSR

RUDOBEL'SKIY, E. V., et al, Veterinariya, No 6, Jun 71, pp 33-40

against hog cholera. It was found that optimum conditions for cultivation were division by a factor of 8-12 of cells from testicular lamb tissues. Such a culture was best for accumulation of attenuated variants of hog cholera virus. The vaccination variant LK and the attenuated variant AK accumulated in a titer of 10^{-5} per ml of medium after 3 days of culture. Further reproduction of the virus is limited by the accumulation of interfering substances in the culture.

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1/2 006

UNCLASSIFIED

PROCESSING DATE--30OCT70

-U-
TITLE--FATE OF ESCHERICHIA COLI ULRNJR DNA IN ESCHERICHIA COLI SPHEROPLASTS

AUTHOR--(02) RUDOCHENKO, D.N., MOLCHANOV, M.I.

CCOUNTRY OF INFO--USSR

SCURCE--GENETIKA 1970, 6(2), 97-102

DATE PUBLISHED-- 70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ESCHERICHIA COLI, BACTERIAL DEOXYRIBONUCLEIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/0996

STEP NO--UR/0473/70/006/002/0097/0102

CIRC ACCESSION NU--AP0122717

UNCLASSIFIED

2/2 006

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--APO122717

ABSTRACT/EXTRACT—(U) GP-0 ABSTRACT E. COLI SPHEROPLASTS READILY INCORPORATE BOTH NATIVE AND DENATURATED E. COLI DONOR DNA. SOME OF THE NATIVE DNA BECOMES SINGLE STRANDED UPON INCORPORATION AND THEN IS QUICKLY CHANGED TO THE NATIVE STATE. THE REST REMAINS IN THE DOUBLE STRANDED FORM. DENATURED DNA REMAINS SINGLE STRANDED UPON INCORPORATION IF CHLORAMPHENICOL IS PRESENT; OTHERWISE, SOME OF IT BECOMES NATIVE.
FACILITY: N. F. GAMALEYA INST. EPIDEMIOL., MICROBIOL., MOSCOW, USSR.

UNCLASSIFIED

AA0040706

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UR 0482

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Soviet Inventions Illustrated, Section I Chemical, Derwent,

235239 SYNTHETIC FIRRES with improved dyeability and other properties are produced by spinning into a coagulating bath a solution containing a polymer mixt. which comprises a sulphonated copolymer(s) of styrene and its derivs. containing 1-15% (by weight of the copolymer) of sulphur in the form of sulphonate groups. The sulphonated copolymer may be dissolved separately from other polymers; subsequently, both solutions are mixed together. In an example, 98 parts of polyacrylonitrile and 2 parts of sulphonated styrene-acrylonitrile copolymer (the ratio styrene-acrylonitrile being 7:3, and the sulphur content

AUTHORS: Peters, W.; Khartig, Z.; Meissner, V.; Rudolf, H.;
and Berger, W.

19750339

AAU040706.

4.8%) were dissolved together in dimethylformamide at 70°C (for 2 hrs.). The resulting 16% soln. was spun into a 50:50 dimethylformamide - water co-agulating bath at 15-16°C. The resulting fibres were stretched in two steps at 98-100°C the total stretching ratio was 1:6. The fibres had a strength of 2.86 g/d, elongation 21%, and a good dyeability. 26.7.67. as 1175317/23-5, PETERS, W. et al. (Priority: 22.8.66. East Germ. 119415) (26.5.69) Bul. 5/16.1.69. Class 29b, Int. Cl. D 01f.

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Acc. Nr:

AP0053447

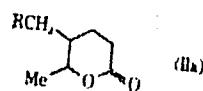
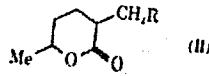
Abstracting Service:

CHEMICAL ABST.

Ref. Code:

GR0366

110730g Substituted lactones and their reactions. XV.
 Formation of α -alkyl- δ -methyl- δ -valerolactones from cyanoethyl-alkylacetocetic esters. Voitsekhovskaya, A. I.; Rudolfi, T. A.; Dashunin, V. M. (Vses. Nauch.-Issled. Inst. Sint. Natur. Dushistvkh. Veshchestv., Vorontsovo, USSR). Zh. Org. Khim. 1970, 6(2), 379-84 (Russ.). The hydrolysis of $\text{MeCOC}(\text{CH}_2\text{CH}_2\text{CN})(\text{CH}_2\text{R})\text{CO}_2\text{Et}$ (R is Pr, Bu, amyl, or hexyl) gave $\text{MeCOCH}_2(\text{CH}_2\text{R})\text{CH}_2\text{CH}_2\text{CO}_2\text{H}$ (I) and $\text{MeCOCH}_2\text{CH}_2\text{CH}(\text{CH}_2\text{R})\text{CO}_2\text{H}$ (Ia). The reduc. of I-Ia mixt. with Ni/H_2 gave 2 isomeric lactones, sepd. by gas chromatog., which on the basis of ir spectra were assigned. α -Substituted valerolactone (II) or γ -substituted-



valerolactone structures (IIa). Each lactone consists of *cis* and *trans* isomers. Refluxing I or Ia in Ac_2O gave the γ -unsatd. II and IIa analogs, which were also reduced to II and IIa with NiH_2 .

CPJR

REEL/FRAME
13830472

USSR

ANISIMOV, V. V., VIGMAN, B. A., ~~RUDOMANOV, V. I.~~

"Stochastic Models of Research Programs"

Prikl. Matematika. Vyp 3 [Applied Mathematics, No 3 -- Collection of Works], Irkutsk, 1971, pp 50-73, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V470 from the Introduction).

Translation: Certain problems are studied, related to the representation of research programs by models consisting of stochastic graphs, and a method is given for determination of the generalized characteristics of these models on the basis of the theory of semi-Markov processes. For definition, research programs such as experimental design developments are studied.

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UDOMETKIN N.M.

SC: JPRS 54340
28 OCT 71

PSYCHOLOGICAL ASPECTS OF ADAPTIVE BEHAVIOR IN COMPLEX SPATIAL ENVIRONMENTS
L314975
V. I. Krasnikov, O. P. Kozorenko,
N. H. Rudometkin

RUDOMETKIN
(ENGLISH)

PP 1-7

Abstract: Among the psychologically important conditions of an astronaut's professional activity the problem of maintaining proper posture is of independent importance. The efforts necessary to assume and maintain importance of this posture, as well as to achieve an adequate perception of this posture while performing a task in a weightless environment could sometimes result in a weightless and marked emotional stress which in an extreme case could ruin performance of the task.

An experimental model has been devised for evaluating the extraastronautal (spatial) tension by taking into account the behavioral, endocrine and postural (determinant of given postural dynamic data) components in the course of limited support conditions performed by a subject. Groups with different occupational training (parachutists, jumpers, etc.) participated in studies which revisited a characteristic dynamic pattern of the maintained psychophysiological correlates.

The results can be used in the cosmonaut selection and training programs.

Ten years of experience with manned space flights have completely confirmed the earlier expressed (F. D. Gorbon, 1962) conclusion that the postural factor plays a relatively independent role in the complex of psychological factors characterizing the conditions for professional activity of cosmonauts.

RUDOMETKIN 44

USSR

CONCHAROVA, L. A., ZOLOTOREVSKIY, YU. S., RUDOMETOV, V. S., SEREBRIYSKIY, E. I.
"Experiment in Refining Aluminum Alloys"

UDC 669.71.018.9.4

V sb. Metallurgiya (Metallurgy -- collection of works), No 14, Leningrad, Sudostroyeniye Press, 1971, pp 35-42 (from RZh-Metallurgiya, No 4, Apr 72, Abstract No 4G197)

Translation: Laboratory experiments in refining the Al-alloys of the Al-Zn-Mg system by argon scavenging and also powdered hexachloroethane suspended in the Ar are described. The blowing parameters were investigated using an aqueous model. Results are presented from studying the contamination of the metal and determining its physical-mechanical and corrosion characteristics. 5 illustrations, 2 tables and a 9-entry bibliography.

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USSR

UDC 669.715:539.4.016.3

AFIZOV, E. A., ZOLOTOREVSKIY, YU. S., KURYASHKIN, L. V., RUDOMETOV, V. S.

"Some Problems of Applying Technological Heating when Manufacturing Structural
Elements from High-Strength Aluminum Alloys"

V sb. Metallovedeniye (Physical Metallurgy -- collection of works), No 15,
Leningrad, Sudostroyeniye Press, 1971, pp 137-148 (from RZh-Metallurgiya, No 4,
Apr 72, Abstract No 4I646)

Translation: Experimental data are presented which characterize the effect of the temperature and duration of heating on the strength and plastic properties of the metal of structural elements made of Al-alloys. It is demonstrated that the application of technological heating can promote a significant increase in the operating qualities of the structural elements. When designing structural elements and developing the process of manufacturing them it is necessary to increase the possible variation of the mechanical properties of the alloys as a result of heating. 4 illustrations, 1 table, and a 12-entry bibliography.

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USSR

UDC 669.71.018.9

ZOLOTOREVSKIY, Yu. S., RUDOMETOV, V. S., SEREBRIYSKIY, E. I., SINYAVINA, N. P.,
TSAREGORODTSEVA, A. I.

"Study of the Relationship Between Structure of Ingots and Properties of Pressed
Semifinished Goods of an Alloy in the System Al-Zn-Mg with Zn/Mg \approx 0.5"

Metallurgiya [Metallurgy -- Collection of Works], No. 15, Leningrad, Sudostroyen-
iye Press, 1970, pp. 121-127. (Translated from Referativnyy Zhurnal Metallurgiya,
No. 5, 1971, Abstract No. 5 G172 by the authors).

Translation: The influence of crystallization rates on the microstructure of
an alloy in the system Al-Zn-Mg is demonstrated. The inherited nature of struct-
ural elements of the ingot is established. 3 figs; 4 tables; 7 biblio refs.
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"APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002202720004-2

TITLE--^{OLD} ON THE ROLE OF ILMENS IN EPIDEMIOLOGY OF DIPHYLLOBOTHRIASIS IN THE
UNCLASSIFIED PROCESSING DATE--16OCT70
ASTRAKHAN REGION -U-
AUTHOR--RUUDOMETOVA, N.K.

COUNTRY OF INFO--USSR

SOURCE--MEDITSINSKAYA PARAZITOLOGIYA I PARAZITARNYYE BOLEZNNI, 1970, VOL
39, NR 2, PP 157-161
DATE PUBLISHED-----70

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SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--EPIDEMIOLOGY, MARINE MICROBIOLOGY, FISH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1448

CIRC ACCESSION NO--APO109508

STEP NO--UR/0358/70/039/002/0157/0161

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002202720004-2"

2/2 015

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0109508

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A HIGH INVASION RATE OF DIPHYLLOBOTHRIASIS AMONG THE POPULATION OF ASTRAKHAN REGION (IN FOCI OF ENATAEVSKY DISTRICTS 25.4PERCENT AND 39.2PERCENT ACCORDING TO DATA OF 1964) IS MAINLY A RESULT OF ACCUMULATION OF INVASION. THE INVASION INCIDENCE OF FISH IN ILMENS (LAKES FORMING FROM AN ARM OF THE RIVER) WHICH ARE THE MAIN SOURCES OF INFESTATION FOR THE POPULATION OF FOCI IS NOT HIGH: PIKES UP TO 10-22PERCENT, (1-2 PLEOCERCIDS). THE CAUSE LIES IN THE LOW INTENSITY OF THE FISHING INDUSTRY IN ILMENS. FIVE SPECIES OF PRIMARY INTERMEDIATE HOSTS HAVE BEEN FOUND IN ILMENS: MESOCYCLOPS LEUCKARTI, M. OITHONOIDES, EUCYCLOPS SERRULATUS, ACANTHYOCYCLOPS VERNALIS, AND TROPOCYCLOPS PRESINUS. FACILITY: KASPIYSKIY N-I INSTITUT RYBNOGO KHOZYAYSTVA, ASTRAKHAN'.

UNCLASSIFIED

1/2 020

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--SYNTHESIS AND COMPLEXING PROPERTIES OF ALPHA, LPHA PRIME N, N
PRIME, ETHYLEDIAMIINEBIS ALPHA ARYL METHYLPHOSPHATIC ACIDS -U-

AUTHOR--(04)-DYATLOVA, N.M., MEOVED, T.YA., RUDDMING, M.V., KABACHNIK, M.I.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHM, 1970, (4), 815-19

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC SYNTHESIS, COMPLEX COMPOUND, SCHIFF BASE,
ETHYLEDIAMIINE, ORGANIC PHOSPHORUS COMPOUND, THERMAL DECOMPOSITION,
COPPER COMPLEX, NICKEL COMPLEX

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1474

STEP NO--UR/0062/70/000/004/0815/0819

CIRC ACCESSION NO--AP0135143

UNCLASSIFIED

2/2 020

CIRC ACCESSION NO--AP0135143

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEATING 9.05 G SCHIFF BASE (PREPD. BY HEATING (CH SUB2 NH SUB2) SUB2 AND BZH AT 60DEGREES) WITH 8.3 G MEP(O)(H)OET IN N ATM. 1.5 HR AT 70DEGREES IN THE PRESENCE OF A CATALYTIC AMT. ETONA ETOH GAVE AFTER TREATMENT AT 0DEGREES WITH DRY HCL DECOMPO. 134-8DEGREES; HEATED AT 145-55DEGREES TO 21.6PERCENT WT. LOSS, AND HEATING THE RESIDUE WITH H SUB2 O GAVE 42.5PERCENT (CH SUB2 NHCHPHP(O)ME(OH)) SUB2 (I), DECOMPO. 241-2DEGREES. SIMILAR REACTION WITH THE SCHIFF BASE FROM SALICYLALDEHYDE GAVE (CH SUB2, NHCH(C SUB6 H SUB4 OH,O)P(O)NE(OH)) SUB2 (II), DECOMPO. 223-4DEGREES. THESE ACIDS GAVE THE FOLLOWING VALUES OF THEIR RESP. PKA: I, 4.61 AND 7.84; AND II, 4.78, 7.55, 10.56 AND 11.58, FROM POTENTIOMETRIC TITRATION DATA. THE FOLLOWING STABILITY CONSTS. (LOG KAPPA) WERE CALCD. FROM TITRN. DATA WITH THE INDICATED METAL IONS, FOR THE COMPLEXES FORMED BY THE ACIDS WITH THE METALS: I; NI PRIME POSITIVE POSITIVE 6.91, CU PRIME POSITIVE MINUS, MINUS (FOR MH SUB2 X, MHX, MX, MIIH SUB2 X) SUB2 AND MX SUB2 TYPES OF COMPLEXES, RESP.); CU PRIME POSITIVE POSITIVE 10.98, 16.74, 20.14, MINUS, MINUS; FE PRIME POSITIVE POSITIVE POSITIVE MINUS, MINUS, 31.25, MINUS, MINUS; AL PRIME POSITIVE POSITIVE POSITIVE MINUS, 15.36, GREATER THAN 20, MINUS, MINUS; AND TiO PRIME POSITIVE POSITIVE POSITIVE, 8.46, OVER 15. Ti(IV) CAN BE OETO. BY MEANS OF II AS A COMPLEXING AGENT, ELEMENTOORG. SOEDIN., MOSCOW, USSR.

FACILITY: INST.

UNCLASSIFIED

USSR

R UDC 542.91 + 541.49 + 661.718.1

DYATLOVA, N. M., MEDVED', T. YA., RUDOMINO, M. V. and KABACHNIK,
M. I., Institute of Organo-Elemental Compounds, Moscow, Academy of
Sciences, USSR, and Institute of Chemical Reagents and Ultrapure
Materials, State Committee for Chemistry

"Synthesis and Complexing Properties of Ethylenediaminobisaryl methyl-
phosphinic Acids"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, Vol 4,
Apr 70, pp 815-819

Abstract: The acids were obtained by condensation of monoethylester
of methylphosphinic acid with Schiff bases of ethylenediamine and
aromatic aldehydes in the presence of catalytic amounts of sodium
ethoxide. With benzaldehyde, the ethyl ester of ethylenediamino-
bisbenzylmethylphosphinic acid is obtained as a dihydrochloride,
which can be converted to the free acid by thermal self-saponifica-
tion. When salicylaldehyde is used, the free acid is obtained
directly. The yields were 42 and 20% respectively. Both acids are
colorless crystalline compounds insoluble in water or organic sol-
vents, soluble in dilute acids and bases. Analysis of three types
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USSR

DYATLOVA, N. M., et al, Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, Vol 4, Apr 70, pp 815-819

of materials, containing phosphinic, phosphonous and phosphonic groups showed that phosphonic groups exhibit strongest complexing properties. It was determined that ethylenediaminobis-o-hydroxybenzylmethylphosphinic acid may be used for spectrophotometric determination of titanium (IV).

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"APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002202720004-2

172 017

UNCLASSIFIED

PROCESSING DATE--02OCT70

TITLE--DETERMINATION OF MASS TRANSFER COEFFICIENTS DURING FRACTIONAL
DISTILLATION -U-

AUTHOR--(03)-RUDDOV, G.YA., CHEKHOV, O.S., TETIVKIN, YU.V.

COUNTRY OF INFO--USSR

R

SOURCE--KHIM. TEKHNOL. TOPL. MASEL 1970, 15(3) 34-7

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MASS TRANSFER, DISTILLATION, GAS STATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1488

CIRC ACCESSION NO--APO112482

STEP NO--UR/0065/70/015/003/0034/0037

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002202720004-2"

2/2 017

CIA ACCESSION NO--AP0112482

UNCLASSIFIED

PROCESSING DATE--02 OCT 70

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE RESISTANCE TO MASS TRANSFER
FOR 3 MIXTS. TO BE DISTD. WAS MAINLY IN THE VAPOR PHASE. THE ANAL. OF
THE PHASE RESISTANCE IN PLATE DISTN. COLUMNS WAS BASED ON A COMPARISON
OF THE MASS TRANSFER COEFFS. FOR 2 SYSTEMS, PROVIDED THAT THE CONTENT OF
1 COMPONENT IN THE BINARY MIST. WAS LESS THAN OR EQUAL TO 1 PERCENT. THE
METHOD SHOWED THE EFFECT OF THE DISPERSION COEFF. AND COULD BE USED IN
THE CASE OF LINEAR EQUIL. DEPENDENCE. COEFFS. AND RESISTANCE FOR SOME
SYSTEMS ARE GRAPHICALLY PRESENTED.

UNCLASSIFIED

Acc. Nr:

AP049906

Abstracting Service
CHEMICAL ABST. 5-70Ref. Code:
UR0492

102190r Analysis of the operation of isobutane columns.
Rudov, G. Ya.; Chelkhev, O. S.; Ovchinnikov, P. A.; Khodak,
V. N. (USSR). Gazov. Prom. 1970, 15(1), 38-40 (Russ). An
anal. was conducted on 4 com. distn. columns for the sepn. of
iso- from n-butane in a light hydrocarbon mixt. Columns 1 and
2 (diam. 240 cm) were of the bubble-cap tray type and operated
with the feed entering trays no. 38, 40, and 42. Columns 3
and 4 (diam. 180 cm) were of the slotted grid-plate type and
operated with the feed entering plates no. 42, 46, and 50. The
pressure of the system was 7 atm. The free cross-section areas
were ~25% of the tray or plate areas. Some data obtained on
columns 1, 2, 3, and 4 were, resp.: iso-C₄ in the feed 22.0, 32.0,
29.0, and 23.0 wt. %; feed rate 5.0, 10.0, 3.7, and 12.0 ton/hr;
reflux rate 36.0, 41.0, 37.5, and 60.0 ton/hr; iso-C₄ distillate
rate 1.1, 2.4, 0.9, and 2.8 ton/hr; iso C₄ distillate compn.
(C₄) 4.0, 0.9, 3.5, 0.9, (iso-C₄) 95.0, 98.8, 95.5, 98.8, (n-C₄)
1.0, 0.3, 1.0, 0.3 wt. %; residue stream rate 3.9, 7.6, 2.8, and
9.2 ton/hr; residue stream compn. (C₂) 5.0, 6.8, 4.0, 6.8,
(iso-C₄) none, (n-C₄) 95.0, 93.2, 96.0, 93.2 wt. %. The calcd.
values for the stripping sections of columns 1, 2, 3, and 4 were,

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resp.: reflux ratio 33.0, 18.0, 41.0, 21.5 to 1.0; vapor velocity in the free cross section 0.15, 0.18, 0.26, and 0.41 m/sec; liq. velocity in the free cross section 0.075, 0.135, —, — m/sec; equation for the flow pattern $y = 1.10x - 0.0051$, $1.14x - 0.0099$, $1.07x - 0.0029$, and $1.15x - 0.0030$. Correlating equations were developed for detg. the actual no. of trays operating in the stripping section; and the mass-transfer coeff., K_{yf} for both the vapor and liq. phases, expressed as (kg mole)/(m² hr), where m² is the area of a bubble-tray. Values of K_{yf} for the vapor phase of the stripping sections of columns 1, 2, 3, and 4 were 34, 74, 78, and 134, resp. Values of K_{yf} are in good agreement with the mass-transfer coeff., β_y , calcd. by the method of V. A. Ivanov, et al. (CA 67: 118601h). A new type of fractionating tray is proposed, which includes 2 zones of vapor-liq. contact, higher velocity of vapor in the free cross section of the tower, and a spacing of 500 mm between trays. L. V. Franklin

pc

H2

19801839

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JSSR

UDC: 533.6.011

GINZBURG, I. P., RUDOV, Yu. M., USKOV, V. N.

"Investigation of Gas Flow in Isolated and Composite Jets Interacting With an Obstacle"

Tr. II Resp. konf. po aerogidromekh., teplotekhniku i massoobmenu. Sekts. "Aero-dinamika bol'sh. skorostey" (Works of the Second Republic Conference on Aero-hydromechanics, Heat Exchange and Mass Exchange. "High-Velocity Aerodynamics" section), Kiev, Kiev University, 1971, pp 150-153 (from RZh-Mekhanika, No 5, May 72, Abstract No 5B320)

Translation: Qualitative pictures of the interaction between supersonic jets and a flat barrier are constructed on the basis of the results of experimental research with cold air jets in the range of Mach numbers $M_\infty = 1.0-3.5$ and roughness factors $n = 1-30$. An investigation is made of the pattern of interaction between an isolated jet and a barrier as a function of the angle between the barrier and the axis of the jet, which was varied from 0° to 90° . Particular attention is given to the properties of viscous flow in the zone of detachment of the boundary layer on the barrier. The shock-wave structure is also plotted for the flow when a four-nozzle jet

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USSR

GINZBURG, I. P. et al., Tr. II Resp. konf. po aerogidromekh., teploobmenu i massoobmenu. Sekts. "Aerodinamika bol'sh. skorostey", Kiev, Kiev University, 1971, pp 150-153

is incident on a barrier normal to the axis of the jet with gasdynamic and geometric parameters of the nozzle assembly and barrier such that jet interaction takes place on the axis of the set-up close to the bottom screen. It is found that under certain conditions maximum pressure on the barrier is reached on the periphery rather than on the jet stagnation point (for both isolated and composite jets), which leads to the development of circulation flow in the central part of the barrier. M. G. Lebedev.

2/2

- 11 -

AA0052561

RUDOVSKIY B.A.

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent,

2/70

244554

SPINNERET NOZZLE HOLDER comprises cylindrical body 1 with edge 2 supporting nozzle plate 3, screen 4, spacer 5 and strainer 6. The latter is surmounted by melt feeding cup 7 with flanges 8 & 9 in slots 10 & 11 of the body, and sealed by disc 13 secured in the body by bayonet connector 12. The melt is fed through channel 16, and the holder is fitted in nest 18 where it is clamped by screw 19.

9.10.67. as 1190372/28-12, PONOMAREV, O.V. et al.
Synthetic Fibres Equipment Design Office.
(8.10.69) Bul. 18/28.5.69. Class 29a, Int. Cl.
D Old. 1

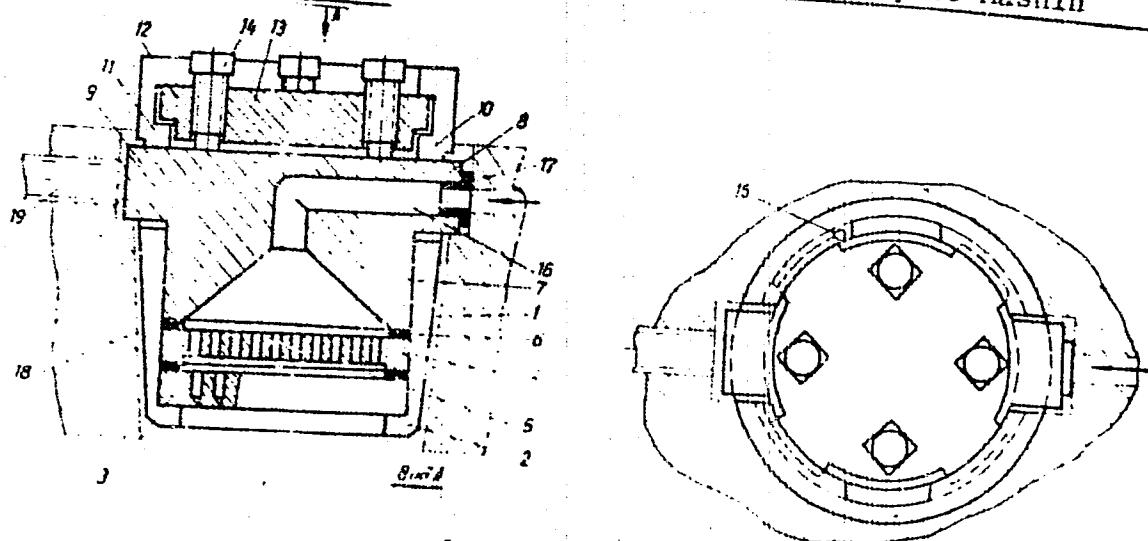
1/2

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19821238

AA0052561

Ponomarev, O.V.; Rudovskiy, B.A.; Zel'din, L.M.; Katsman, A.E.:
Spetsial'noye Konstruktorsko-Tekhnologicheskoye Byuro Mashin
Khimicheskikh Volokon



19821239

MT

USSR

UDC 669.26'854'794.620.193.41

TAVADZE, F. N., MKADZE, O. I., RUDOV, A. P., and MANDZHAGALADZE, S. N.,
Institute of Metallurgy, Academy of Sciences Georgian SSR
"Influence of Lanthanum and Yttrium on Corrosion Resistance of Chromium
in Sulfuric Acid"

Metallovedeniye i Termicheskaya Obrabotka Metallov, No 2, 1974, pp 28-30

Abstract: This work presents a study of the influence of lanthanum and yttrium on the corrosion resistance of chromium in sulfuric acid at 20 and 100° C. The material used in the study was electrolytically refined chromium containing 0.006% N, 0.004% O, less than 0.04% Si, 0.005% Ni, 0.01% Fe, 0.006% Al, 0.002% S, 0.003% Cu. The content of the rem in the chromium alloys was 0.24-1.48% La, 0.28-2.63% Y. One peculiarity of the process of corrosion of chromium alloys with lanthanum and yttrium in sulfuric acid solutions is that the maximum rate is observed in the initial period of the test, with subsequent stabilization. Lanthanum and yttrium are anodic inclusions and are etched out in sulfuric acid. The structure of the matrix does not influence the corrosion resistance of the alloys of chromium in 50% sulfuric acid, but does in a 30% solution. The introduction of 0.28% Y to chromium activates the chromium, while 0.68% La does not damage its passivity at room temperature.

1/1

- 30 -

USSR

UDC: 533.6.011

RUDOY, B. P., GRISHIN, Yu. A."Gasdynamic Functions for One-Dimensional Isentropic Unsteady Flows"

Tr. Ufim. aviats. in-ta (Works of the Ufa Aviation Institute), 1970, vyp. 17, pp 23-29 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7B222)

Translation: Cases are considered where a one-dimensional translational flow of a perfect gas is decelerated in a simple rarefaction wave propagating in the same direction or in a simple compression wave going counter to the flow. Formulas are given which express the relative change of pressure, density, temperature, and speed of sound in the corresponding waves in terms of the Mach number in an undisturbed flow. Graphs are plotted for $\gamma = 1.4$.

Abstractor's note: The article contains no new results. The formulas presented in the article are a special case of formulas (40.10) given in the book by Courant and Friedrichs cited by the authors. No mention is made in the article of the fact that the computational formulas in the case of a simple compression wave are suitable only up to the moment of de-

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1/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--SECOND SERIES DRUGS IN THE TREATMENT OF PATIENTS WITH CHRONIC
DESTRUCTIVE PULMONARY TUBERCULOSIS -U-

AUTHOR--(03)-FEDOROVA, I.YE., UTKIN, V.V., RUDDY, R.M.

COUNTRY OF INFO--USSR

R

SOURCE--VRACHEBNOYE DELO, 1970, NR 4, PP 136-138

DATE PUBLISHED----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TUBERCULOSIS, LUNG, ANTITUBERCULAR DRUG, CHEMOTHERAPY, DRUG
RESISTANCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/1597

CIRC ACCESSION NO--APO127088

UNCLASSIFIED

STEP NO--UR/0475/70/000/004/0136/0138

2/2 020

CIRC ACCESSION NO--AP0127088

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE USE OF SECOND SERIES DRUGS (ETHIONAMIDE, CYCLOSERINE AND DTH.) INCREASED THE EFFICIENCY OF CHEMOTHERAPY OF CHRONIC DESTRUCTIVE TUBERCULOSIS IN CASE OF BACTERIOLOGICAL OR CLINICAL RESISTANCE TO THE MAIN DRUGS. SIDE EFFECTS WITH SECOND SERIES PREPARATIONS WERE OBSERVED IN 50.3 PERCENT OF CASES, INCLUDING 16 PERCENT OF UNCONTROLLED SIDE EFFECTS. THE PRESENCE OF GASTROINTESTINAL PATHOLOGY WORSENS THE TOLERANCE OF ETHIONAMIDE. RESISTANCE OF TUBERCULOUS MYOBACTERIA TO ETHIONAMIDE WAS SEEN IN 26.7 PERCENT, TO CYCLOSERINE, IN 5.8 PERCENT.

FACILITY:

UNCLASSIFIED

USSR

UDC 620.197.2

ANOSOVA, G. M., RUDOV, V. M., and LEVIN, A. I.

"Corrosion of Steel and the Effect of Certain Inhibitors When Applying Alternating Current"

Moscow, Zashchita Metallov, Vol 6, No 6, Nov-Dec 70, pp 703-704

Abstract: This article contains a discussion of the effect of inhibitors on the corrosion properties of St.3 steel when an alternating current is applied. Graphs are presented showing the corrosion rate and the tangent of the phase shift angle as functions of the concentration of inhibitors for $\text{Na}_7\text{C}_5\text{H}_5\text{O}_2$, Na_3PO_4 , and $\text{K}_2\text{Cr}_2\text{O}_7$, at a frequency of $f = 500$ hertz, with a sinusoidal current density of 30 milliamps/cm² and a corrosion test time of 7.5 hours. It is pointed out that the retarding of electrocorrosion when applying an alternating current can be considered the result of retarding the anodic reaction of solution of the metal and increasing the proportion of the capacitive current. Insignificant additions of the chemical inhibitors to the electrolyte lead to retarding of the corrosion process. However, the protective effect of Na_3PO_4 drops from 94.7% to 62.3% on application

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USSR

ANCSOVA, G. M., et al., Zashchita Metallov, Vol 6, No 6, Nov-Dec 70, pp 703-704
of an alternating current. The protective capacity of the investigated inhibitors compares as follows: $K_2Cr_2O_7 > Na_3PO_4 > NaC_7H_5O_2$. From the experiments formed the conclusion is drawn that the effect of inhibitors during electrocorrosion of steel is exhibited in two ways: directly by retarding the anodic dissolution rate and indirectly by increasing the proportion of the nonFaraday current.

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AA0040696 R

Rudoy, V.S.

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, ¹⁻⁷⁰

241947 FORGING METHOD for hollow articles such as pipes. In the conventional methods i.e. by drawing and rolling the elasticity of the metal has to be allowed for. This new methods seeks to draw the article through a multi start threaded nut where the threads reduce to '0' towards the exit thus controlling the metal flow in the cross and longitudinal direction.
27.12.65 as 1045697/25-27. V.S. RUDOV & OTHERS. PIPE RES. & DES. INST. (26.8.69) Pat 14/Pg.4.69. Class 49b Int.Cl.B 23k.

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19750320

"APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002202720004-2

AA0040696

AUTHORS:

Rudoy, V. S.; Cherkasov, N. K.; and Fesenko, G. M.

Vsesoyuznyy Nauchno - Issledovatel'skiy i Konstruktorsko -
Tekhnologicheskiy Institut Trubnoy Promyshlennosti

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19750321

APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002202720004-2"

1/2 010

TITLE--PRODUCTION OF FILTER GAUZES FROM POLYPROPYLENE AND POLYETHYLENE
UNCLASSIFIED
MONOFILAMENTS -U-
PROCESSING DATE--13NOV70

AUTHOR--(03)-BUTYLO, K.P., PINCHUKOVA, YE.F., RUDUKHA, B.N.

COUNTRY OF INFO--USSR

SOURCE--LEGKA PRUM. 1970, (1), 31-3

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--FILTRATION, POLYPROPYLENE, POLYETHYLENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0878

CIRC ACCESSION NO--AP0124541

UNCLASSIFIED

STEP NO--UR/0513/7070007001/0031/0033

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CIRC ACCESSION NO--AP0124541

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW WITHOUT REFS. ON PROPERTIES, USE, AND PRODUCTION OF THE TITLE FILTER GAUZE. THE REQUIREMENTS FOR APPLICATION IN THE CHEMICAL AND COAL INDUSTRY (E.G., THE STABILITY TO HCL, H SUB2 SO SUB4 AND TEMPS. LESS THAN OR EQUAL TO 80DEGREES, ETC.), AND THE PHYS. AND CHEM. PROPERTIES OF THE FILTER GAUZES WERE DISCUSSED.

UNCLASSIFIED

USSR

UDC: 621.372.85

NEKRASOV, M. M., BERNSTEIN, E. A., POPLAVKO, Yu. M., RUDYACHENKO, N. K.,
YAZYTSKIY, B. Ya.

"Investigation of the Effect of Temperature Self-Stabilization in the SHF
Band"

Elektron. tekhnika. Nauchno-tekhnik. sb. Radiotekhnika (Electronic Technology).
Scientific and Technical Collection. Radio Components), 1970, vyp. 1(18),
pp 47-50 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11B152)

Translation: The authors discuss the effect of temperature self-stabilization which is observed in some ferroelectric crystals. Strong dielectric dispersion which occasions considerable losses in the ferroelectric phase results in the establishment of the SHF temperature self-stabilization mode. These losses lead to intensive heat release and heating of the ferroelectric by a SHF field past the Curie point. The results of an experimental study of ferroelectrics in strong SHF fields are given. Experimental relationships are given for the coefficient of losses in ferroelectrics as a function of temperature, as well as relationships for the dielectric constant and through power as functions of the suppressed power in the SHF range for a polycrystal specimen of barium titanate with impurities. The experiment was carried out on a frequency of 10 GHz. Four illustrations, bibliography of nine titles.
V. S.

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- 24 -

USSR

RUDYAK, E. M., BRICHKIN, A. V.

UDC: 622.011.43

"Mechanism of Thermal Destruction of Rocks Under Conditions of Brittle Splitting"

Nauch. tr. Kazakhsk. politekhn. in-t (Scientific Works. Kazakh Polytechnical Institute), Alma-Ata, 1971, pp 382-391 (from RZh-Mekhanika, No 5, May 72, Abstract No 5V585)

Translation: The authors calculate destruction of rocks with various physicomechanical and thermophysical properties under the effect of heat flux from a jet. Splitting stresses resulting in cracks parallel to the free surface arise at the point of action of the flux as a consequence of the difference in temperatures of the surface and deep-lying layers. The plate of rock over the crack is clamped around the perimeter. A bending moment is developed during thermal expansion. The relation between splitting and normal stresses is determined as well as the condition of crack formation and cleavage of the plate. The resultant equations are recommended for setting the minimum heat flux sufficient for splitting rock. G. M. Lyakhov,

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USSR

UDC 621.371.029.55

VSEKHOSVYATSKAYA, I. S., GLADYSHEVA, M. V., GORSHKOVA, E. Z.,
DUMBRAVA, Z. F., YEROFEYEV, N. M., ZOLOTAREV, A. Ye., KIYANOVSKIY,
N. P., MAL'SHAKOV, V. N., NOVIKOVA, L. N., PEZHEMSKAYA, M. D.,
PODDEL'SKIY, N. P., and RUDYKA, L. V.

"Some Results of Investigations Into Tilted Short-Pulse Sounding
in Ranges up to 400 km Long"

Moscow, V sb. X Vses. konf. po rasprostr. radicvoln. Tezisy dokl.
Sekts. 1 (Tenth All-Union Conference on the Propagation of Radio
Waves; Report Theses; Section 1--collection of works) "Nauka,"
1972, pp 347-348 (from RZh--Radiotekhnika, No 10, 1972, Abstract
No 10A333)

Translation: Results are given of the selection of optimal operating frequencies for ranges of varying extent, the identification of propaganda modes, and the determination of the spectral characteristics of the fluctuations in signal level. A. L.

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-USSR

RUDYAK, V. M., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 9, Sep 71, pp 1897-1899

find and graphically confirm that light influences the processes of reversal only when the polarization is found to be in an unbalanced state. When the polarization becomes balanced, there is no manifestation from the light effect within the sensitivity range of the equipment employed. The article contains 3 illustrations and 9 bibliographic entries.

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APPROVED FOR RELEASE: 08/09/2001

UDC 537.226.33 CIA-RDP86-00513R002202720004-2

USSR

RUDYAK, V. M., BOGOMOLOV, A. A., and IVANOV, V. V.

"The Influence of Illumination on the Processes of Polarization Reversal of SbSI Single Crystals"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 9, Sep 71, pp 1897-1899

Abstract: It has been shown many times in the past that the illumination of SbSI single crystals produces a change in the amount of polarization and an acceleration in the process of establishing polarization. It has also been seen that the effect from the action of light depends greatly on the interval of time which divides the electric field commutation from the moment of supplying the light impulse. This paper is concerned with a more detailed investigation of the dependence of the influence of illumination on the processes of reversing SbSI as a function of the time interval. The authors use both methods employed earlier and the method of fixing the point of reversal, thus allowing them to directly observe the kinetics of rearranging the domain structure and to fix the change in the entire polarization. They

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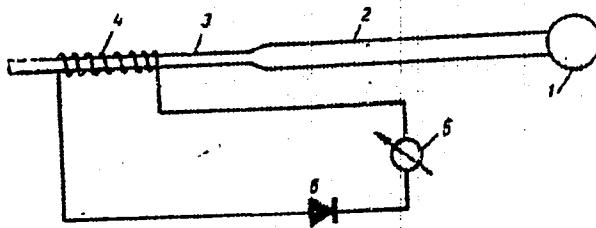
AA0044812

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UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

243876 ULTRASONIC INTENSITY METER comprise a magnetostrictive resonance rod and attached to a ball shaped collecting device of di-magnetic material, a brass waveguide 2 and nickel vibrator 3 on which is placed coil 4. The end wires of the coil are connected to a galvanometer 5.

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8.7.66 as 1089262/18-10. A.I.TSEPELEV & V.M.RUDYK.
KALININ EDUCATIONAL INST. (6.10.69.) Bul 17/14.5.69.
Class 42g. Int.Cl.G 01b.

19771660

AA0044812

243876

Kalininskiy Gosudarstvennyy Pedagogicheskiy Institut

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19771661

USSR

UDC 535.853:535-14

STANEVICH, A. YE., ZAZVORKA, V. V., POLUSHKIN, YU. I., and RUDYAVSKAYA, I. G.,
Candidates of Technical Sciences

"A Spectrophotometer for the Long-Wave Infrared Region"

Leningrad, Optiko-Mekhanicheskaya Promyshlennost', No 6, Jun 73, pp 32-37

Abstract: A description is given of the first domestically produced two-beam SP-143 spectrophotometer for the 20-500 micron region, and results of tests on an experimental model are presented. The instrument is designated for automatic recording of the absorption spectra of solid, liquid, and gaseous objects at various temperatures, as well as reflection spectra of solid specimens.

Spectra of atmospheric water vapor, recorded during single-beam and two-beam operation of the instrument are presented. The spectral resolution of the instrument is $0.5\text{-}1.0 \text{ cm}^{-1}$, the precision is to within $\pm 0.5 \text{ cm}^{-1}$, the photometric exactness is to within 1-2%, and the purity of the spectra is, as a rule, not less than 99%. 3 figures. 1 table. 6 references.

1/1

- 132 -

USSR

UDC: 539.3:534.1

RUDYKH, G. N.

"Experimental Study of the Stability of Framed Cylindrical Shells in Axial Compression"

4-Ya Vses. Konf. po Probl. Ustoychivosti v Stroit. Mekh., Tezisy Dokl. [Fourth All-Union Conference on Problems of Stability and Structural Mechanics, Abstracts of Reports -- Collection of Works], Moscow, 1972, pp 139-140 (Translated from Referativnyy Zhurnal Mekhanika, No 12, 1972, Abstract No 12V302, by V. V. Kabanov)

Translation: Results are presented from tests of thirteen reinforced shells in axial compression under near-natural conditions. The shells had stringers and ribs. Shell diameter was 150 cm. The results of tests are compared with calculated results produced using an applied method developed by the author. Good agreement between calculated and experimental values of critical compressive force was observed. The influence of initial irregularities, eccentricity of placement of reinforcement, unevenness of application of axial load for the shells tested was found to be insignificant.

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USSR

RUDYKH, O. D., and KEYSEVYCH, L. V., candidates of medical sciences
"Theoretical Aspects of Cryobiology"

Kiev, Vestnik Akademii Nauk Ukrains'koy SSR, Vol 34, No 12, Dec 70, pp 38-50

Abstract: Research on cryobiology conducted abroad and in the USSR is briefly reviewed. The three most important aspects of the problem are discussed: anabiosis from a frozen state; the biological effect of low temperatures on the organism; and the effect of protective solutions on the process of freezing and thawing. Certain conclusions can be drawn. The basic principles of the potentials of cryobiology have been already formulated. Unsolved problems concern the effect of the freezing process on tissues and cells. Slow freezing kills tissues because of disruption of fine metabolic processes, and the considerable accumulation of salts as a result of the freezing of water. Rapid freezing, on the other hand, leads to intracellular ice formation and the rupture of intracellular membranes. Furthermore, the freezing period does not depend so much on the temperature of the freezing agent as on the ability of the agent to cool the object; that is, it is to a large degree dependent on the size
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USSR

RUDYKH, O. D., and KEYSEVYCH, L. V., Vestnik Akademii Nauk Ukrains'koy SSR,
Vol 34, No 12, Dec 70, pp 38-50

of the object, its water content, and some other factors. This, therefore, makes it necessary to experimentally determine in each case the appropriate regimen for the freezing of a given object. At the same time it is also important to determine the proper thawing regimen, taking into account the colloidal nature of cell protoplasm. Rapid thawing may cause the tissues to swell because of the excessive inflow of water. Another important factor is the necessity of maintaining after freezing a temperature equal to that used in the freezing, for any temperature fluctuation (such as a rise) may cause the recrystallization of the formed ice crystals and result in damage to tissues and cells. Cryophylactic processing with a solution to determine the low temperature which will sustain the vital activities of the tissues and cells without damaging them may be of considerable help. Little as yet is known of the possible toxic effects of the freezing solutions, and a search for safe cryophylactic solutions must be conducted. An objective study of the available literature data and results of the authors' investigations suggest that during the process of preservation of frozen tissues, changes occur in the cells which lead to their biological aging. It must
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USSR

RUDYKH, O. D., and KEYSEVICH, L. V., Vestnik Akademii Nauk Ukrains'koy SSR,
Vol 34, No 12, Dec 70, pp 38-50

be regrettfully said that the number of publications carrying material on the
problem of cryobiology has considerably decreased during the past few years,
and the material that is published is of little practical value.

3/3

UDC 629.7.036.3-55.001.4

USSR

MEL'NIKOV, V. G. and RUDYKO, V. I.

"Test Stand for Testing Jet Engine Regulators"

USSR Author's Certificate No 345400, filed 18 Dec 70, published 3 Aug 72 (from RZh-
34. Aviatsionnyye i Raketynyye Dvigateli, No 4, Apr 73, Abstract No 4.34.92 P)

Translation: A test stand is patented for testing jet engine regulators. The test stand contains a computer and the tested regulator with automatic start and fuel distributor. The unit differs from others in that the electropneumo-converter is connected to the automatic start unit in order to improve the quality of testing, the distributor inlet is connected to its outlets by means of bypass lines with built-in electromagnetic valves, and the electropneumo-converter and the valves are connected to the computer for control with respect to a given program. Original article: 1 illus. Resume.

1/1

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UDC: 621.438-226.3

USSR

RUDYKO, V. I., YAKOVLEV, A. T.

"A Method of Determining the Frequency Characteristics of the rpm Regulator
of a Turbojet Engine"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 5, Feb 73, Author's Certificate No 364856, Division F, filed 5 Apr 71,
published 28 Dec 72, p 125

Translation: This Author's Certificate introduces a method of determining
the frequency responses of the rpm regulator of a turbojet engine by let-
ting part of the fuel fed to the engine by the regulator bypass to waste
in accordance with a periodic law, and recording the rpm and the flowrate
of the fuel metered by the regulator. As a distinguishing feature of the
patent, accuracy is improved and the range of determination of character-
istics is extended by feeding additional fuel to the engine in parallel
with the regulator to adjust the latter to a given amplification factor.

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UDC 669.14.018.29

USSR

RUDYUK, S. I., BAGUZIN, V. I., BELIN, YE. L., VOLOVEL'SKIY, I. L., and
KUTEROVA, S. V., Ukrainian Scientific Research Institute of Metals and
Kharkov Polytechnical Institute

"Statistical Investigation of the Effect of Chemical Composition on the
Properties of Heavy Rolled Iron"

Moscow, Stal', No 9, Sep 73, pp 833-834

Abstract: The relationship between chemical composition and mechanical properties of the most used carbon and low-alloy steels (St3kp, St3ps, St3sp, 20, 45, 09G2 and 14KhSND was investigated using the results of spot checks and chemical analyses of metal from the Kuznets Metallurgical Combine and Azovstal' Metallurgical Plant for 1968-70. A Minsk-22 computer was used to perform nonlinear multiple correlations on multidimensional models which characterize the relationship of mechanical properties to the content of basic elements in the steel (C, Mn, Si, S, P, Cr, Ni, Cu, and As) as well as thickness of the rolled metal. By this approach it was possible to determine only one-third of the total dispersion of mechanical properties. Evidently, for constructing a mathematical model with a high coefficient of

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USSR

RUDYUK, S. I., et al., *Stal'*, No 9, Sep 73, pp 833-834

determination it is necessary to investigate the effect of phase composition and structure factors. V. M. YANKELEVICH, T. F. FILIPPOVA, YU. A. PODVOYSKIY, L. K., ZADOROSHNYA, and I. M., AZARENKOVA, participated in this work. Three tables, four bibliographic references.

2/2

UDC 621.3.048

USSR

BORISENKO, A. I., NIKOLAEVA, L. V., GOVOROVA, R. M., KHASHKOVSKIY, S. V.,
and RUDYUK, V. YA.

"Flexible Inorganic Electrically Insulating Coatings"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 45, No 10, Oct 72, pp 2258-2261

Abstract: Flexible inorganic electrically insulating coatings are prepared from drosses in which a semicolloidal nitrate solution serves as the dispersion medium. In the process of thermal treatment such solutions decompose yielding a glassy binding and volatile components. Such coatings have many useful properties: excellent flexibility, stability against heat and high dielectric properties at 1000°. Glass-ceramic coatings are fixed durably on nickel, Nichrome, chromel, Alumel, Copel, platinum, tungsten, and tungsten-rhenium wires, the process of depositing and fixation being very simple, capable of continuous operation.

1/1

Acc. Nr.: AN'0103343

Ref. Code: UR 9012

FROM: FBIS/FPD, Cybernetics in the USSR, 31 March 1970, Nr 0021/70, P
21. USSR

RUDZINSKAS, A.

"Automation for Control"

Moscow, Pravda, 27 Jan 70, p 2

Translation: The first batch of complex electronic devices permitting automation of the control in plants, transport enterprises, and trading, finance, statistical, and supply organizations has been produced by the Lithuanian "Sigma" association. These devices form a harmonious system called RUTA-110. The systems developed at "Sigma" provide not only solutions to problems of operative control and planning, but also make it possible to obtain answers as to the best way to accomplish planned programs.

Figures, reflecting the most diverse sides of industrial activity are fed into the device, which reads any symbol written either by hand or typed on a machine.

REEL/FRAME

19861545

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Acc. Nr.: AN0103343

Every second, 200 such symbols are transformed into signals comprehensible to computers. Information is transmitted for any distance through this apparatus which is installed in industrial sections. The complete mechanization of the data input replaces up to 40 operators.

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27

Reel/Frame

19861546

UDC 615.28:547.789.6

USSR

RUDZIT, E. A., LUK'YANOV, A. V., VORONIN, V. G., KULIKOVA, D. A., and
RADKEVICH, T. P., All Union Scientific Chemical Pharmaceutical Research
Institute imeni S. Ordzhonikidze, Moscow

"Antimicrobial Activity of Benzothiazolequinones"

Moscow, Farmakologiya i Toksikologiya, Vol 34, No 3, May-Jun 71, pp 350-352

Abstract: Antimicrobial activity of 2-substituted 4-dialkylaminobenzothiazolequinones-6,7, 6-hydroxybenzothiazolequinones-4,7, and 2-substituted-6-hydroxy(methoxy)-benzothiazoles was studied. It was determined that none of the 2-substituted 5-hydroxy(methoxy)benzothiazoles, 6-hydroxybenzothiazolequinones-4,7, nor their 5-halo or 5-piperidinomethyl substituted analogs possessed any antimicrobial activity. Only the benzothiazolequinones-6,7 with nitrogen-containing substituents in positions 2 and 4 showed bacteriostatic (including tuberculostatic) and some nycostatic activity.

1/1

Nitrogen Compounds

UDC 615.28:547.567.012

USSR

LUK'YANOV, A. V., RUDZIT, E. A., ALESHINA, V. A., VORONIN, V. G., RADKEVICH, T. P., KULIKOVA, D. A., LISITSA, L. I., and TSIZIN, YU. S., All-Union Scientific Research Chemistry Pharmaceutical Institute imeni Sergo Ordzhonikidze, Moscow, Ministry of Health USSR

"Study of Heterocyclic Quinones. XV. Synthesis and Antimicrobial Action of Substituted Indolequinones-4,5"

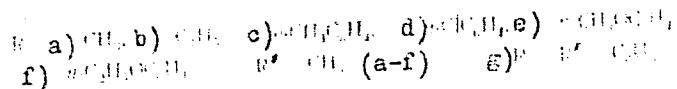
Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 4, No 7, 1970,

Abstract: In earlier reports the authors showed that several heterocyclic quinones can be obtained by oxidation of the corresponding phenols with oxygen in the presence of a Cu²⁺-secondary amine complex. The present report describes the use of this method for oxidation of 5-oxyindoles (I) and the study of the structures of the resulting compounds (II) and their antimicrobial action.

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USSR

LUK'YANOV, A. V., et al., Khimiko-Farmatsevticheskiy Zhurnal, Vol 4, No 7, 1970, pp 16-20



It was established that all compounds tested are inactive toward tuberculosis bacillus, gram-negative bacteria, and fungi. Of correlations existing between structure and action, the following were noteworthy: 1) all tested 5-oxyderivatives of 2-methyl(or phenyl)-3-carboethoxyindole (Ia-I) do not suppress bacterial growth. 2) Antibacterial activity toward gram-positive microorganisms is exhibited by 2-methyl-3-carboethoxy-7-piperidinoindolequinones-4,5 containing an aryl substituent at N_1 (IIb-IIIf). 3) Phenazine derivatives (IIIa-IIIIf) of o-quinones (IIa-IIIf) do not exhibit antibacterial action. Results of this study show the value of searching for new antibacterial preparations among the new series of o-quinones of 2-methyl-3-carboethoxy-7-piperidinoindole.

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1/3 013 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--3,(4,5,DIBROMO,2,FURYL),5,METHYLSOXAZOLE,4,CARBOXYLIC ACID AND ITS
DERIVATIVES -U-
AUTHOR-(04)-KHAMISAMUTDINOV, G.KH., STRUKOV, I.T., SOLNSTEVA, A.A., RUDZET,
E.A.
COUNTRY OF INFO--USSR

R

SOURCE--KHIM.-FARM. ZH. 1970, 4(2), 21-3

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--FURFURAL, BROMINATION, HETEROCYCLIC OXYGEN COMPOUND, ISOMER,
ORGANIC AZO COMPOUND, PENICILLIN, BACTERICIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1993/0597

STEP NO--UR/0450/70/004/002/0021/0023

CIRC ACCESSION NO--A00113484

UNCLASSIFIED

2/3 013

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0113484
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. K SUB2 CO SUB3 (14G) IN 120 ML H
SUB2 O AND 51.5 G POWD. I (X EQUAL CHO), M. 36-70DEGREES (PREPD. IN
41.5PERCENT YIELD BY BROMINATION OF FURFURAL) ARE ADDED WITH STIRRING TO
A COOLED SOLN. OF 14 G NH SUB2 OH.HCl IN 120 ML H SUB2 O, AND THE MIXT.
IS STIRRED 1.5 HR AT 35-40DEGREES AND KEPT OVERNIGHT AT ROOM TEMP. TO
GIVE 90.6PERCENT ISOMER A OF I (X EQUAL CH IS TO NOH), M. 113-14DEGREES.
THIS (20 G) IN 300 ML DRY C SUB6 H SUB6 IS SATD. WITH DRY HCl TO YIELD
96PERCENT ISOMER B OF I(X EQUAL CH IS TO NOH), M. 123DEGREES. A
SUSPENSION OF 6.72 G OF THIS IN 40 ML ABS. ETOH IS CHLORINATED AT MINUS
10 TO MINUS 13DEGREES TO COMPLETE OXIME DISSOLN. (SIMILAR TO 1.5 HR),
THE SOLN. OF I (X EQUAL CCl IS TO NOH) OBTAINED IS ADDED OVER 20 MIN
WITH STIRRING TO A COOLED ETHANOLIC SOLN. OF FRESHLY PREPD. ACCHNACO
SUB2 ET (FROM 50 ML ABS. ETOH, 1.53 G METALLIC Na, AND 8.9 G ACCH SUB2
CO SUB2 ET), AND THE MIXT. BROUGHT TO PH 7.5-8, STIRRED 1 HR AT MINUS 5
TO MINUS 10DEGREES, AND KEPT 45 HR AT ROOM TEMP. TO YIELD 51.2PERCENT II
(Y EQUAL OEt), M. 123.5-24DEGREES (PETROLEUM ETHER). THIS (1 G), 0.14 G
(Y EQUAL OH), M. 229.5-30DEGREES (AQ. ETOH). SOCl SUB2 (5 ML) AND 2
DRGPS HCONME SUB2 ARE ADDED TO THE SUSPENSION OF 1.8 G OF THIS IN 30 ML
C SUB6 H SUB6, AND THE MIXT. REFLUXED 4 HR TO GIVE 76.6PERCENT II (Y
EQUAL C1) (III), M. 90-1DEGREES (PETROLEUM ETHER).

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0113484
ABSTRACT/EXTRACT--THIS (1 G) IN 5 ML DRY ME SUB2 CO IS ADDED STEPWISE TO A STIRRED SOLN. OF 0.64 G 6-AMINOPENICILLANIC ACID IN 18 ML 3PERCENT NHCO SUB3, AND THE MIXT. STIRRED 3.5 HR AT 20DEGREES TO GIVE 0.34 G NA SALT OF 3-(4,5-DIBROMO-2-FURYL)-5-METHYLISOCXAZOL-4-YLPENICILLIN, THE ANTIBACTERIAL ACTIVITY OF WHICH IS EXAMD. CONCD. AQ. NH SUB3 (10 ML) IS ADDED DROPWISE TO A STIRRED SOLN. OF 0.7 G III IN 20 ML DRY DIOXANE, AND THE MIXT. KEPT 30 MIN TO YIELD 83.3PERCENT II (Y EQUAL NH SUB2), M. ON A BOILING WATER BATH 2 HR TO GIVE 88.5PERCENT II (Y EQUAL OME), M. 117-18DEGREES (MEOH). THIS (1 G), 0.5 ML ABS. ETOH, AND 0.3 ML N SUB2 NEGATIVE H SUB4 IS HEATED ON A BOILING WATER BATH 2 HR TO YIELD 67PERCENT II (Y EQUALS NHNH SUB2), M. 205.5-206DEGREES (ETOH).

UNCLASSIFIED

USSR

UDC 541.121:547.581.9'241.057

RUDZIT G. P., PASTARE, S. YA., and YANSON, E. YU., Latvian "Order of the Red Banner of Labor" State University imeni P. Stuchka

"Tetraphenylphosphonium Salts of α -Furandithiocarboxylic, Dithiopiperonylic and 2-Hydroxydithiobenzoic Acids"

Riga, Izvestiya Akademii Nauk Latviyskoy SSR, Seriya Khimicheskaya, No 2, 1972, pp 163-166

Abstract: The spectrophotometric method was used to determine the ionization constants of thiolthionic groups in α -furandithiocarboxylic acid ($pK_{CSSH} = 2.04$) and dithiopiperonylic acid ($pK_{CSSH} = 2.29$). Using radioactive isotopes, the authors studied the time dependence of the degree of extraction of zinc, nickel and trivalent iron compounds, with tetraphenylphosphonium salts of α -furandithiocarboxylic acid, dithiopiperonylic acid and 2-hydroxydithiobenzoic acid serving as reactants. It was found in all cases that equilibrium is reached slowly due to the hydrophobic nature of the tetraphenylphosphonium ion.

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1/2 016

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--THE ELECTROSTATIC TRANSVERSE WELDING OF CONDUCTORS WITH LOCAL
DESTRUCTION OF INSULATION -U-
AUTHOR-(04)-RUDZIT, R.B., BUMBIYERIS, E.V., MOSKVIN, E.G., ZINOVYEV, G.V.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, SVAROCHNOYE PROIZVODSTVO, NO 1, 70, PP 26-28

DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--RESISTANCE WELDING, BIBLIOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/2032

STEP NO--UR/0135/70/000/001/0026/0028

CIRC ACCESSION NO--AP0118986

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--23 OCT 70

CIRC ACCESSION NO--AP0118986

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY IS MADE OF THE PROBLEMS DEALING WITH THE RESISTANCE TRANSVERSE WELDING OF THE INSULATED CONDUCTOR WITH THE NONINSULATED ONE UNDER CONDITIONS OF A COMPLETE PRESERVATION OF THE INSULATION BEYOND A DIRECT CONTACT BETWEEN PARTS-

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AA0040689

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UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent,

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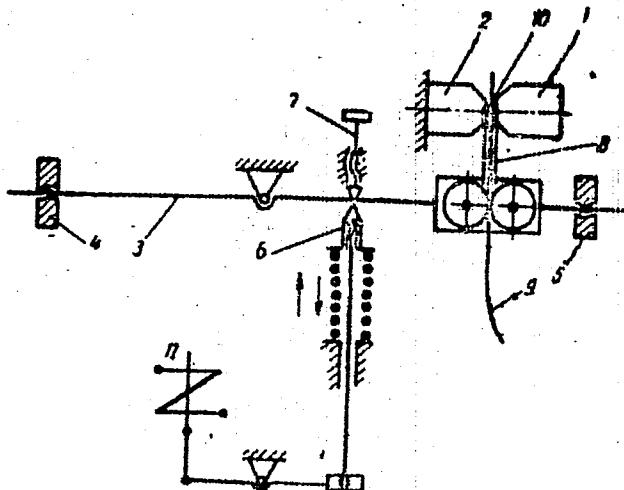
241957 CONTACT SOLDERING MECHANISM has solder feed control comprising a double-arm lever (3), with weights (4,5). Tube (8) for solder (9) feed is attached to the lever. The component for soldering (10) is placed between the electrodes (1,2), heat applied, and the lever is pulled down by electromagnet (11), tearing off the required amount of solder.

AUTHORS: Litsis, A. E., Budzik, R. B.; Moskvin, E. G.; and
Mukhiputdinov, A. L.
Rizhskiy Politekhnicheskiy Institut

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19750303

AA0040689



30.10.67 as 1194057/25-27. A.E.LITISIS et alia.RIGA
POLYTECHNIC (28.8.69) BuI 14/18.4.69. Clans 49h,
Int.Cl.B 23k.

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AA0040444

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UR 0482

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Soviet Inventions Illustrated, Section I Chemical, Derwent,

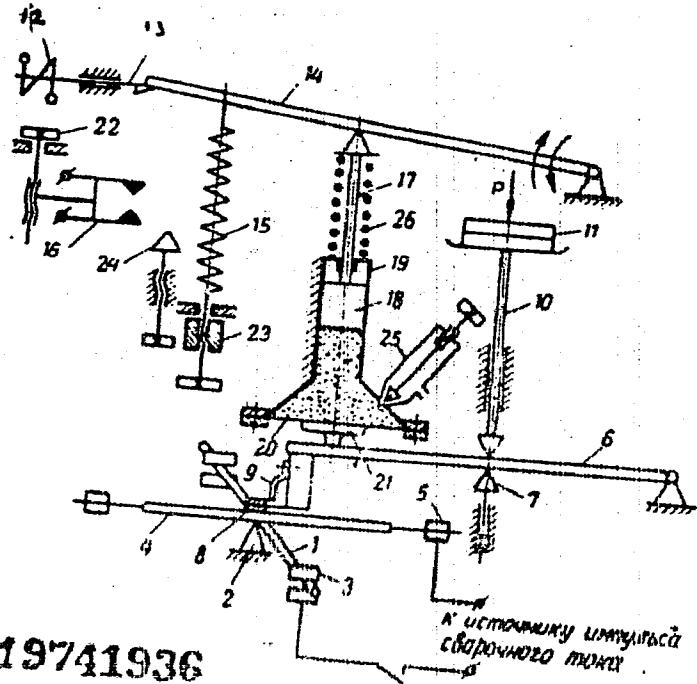
236667 RESISTANCE WELDING of an insulated conductor, 4 crossing a bore conductor 1, uses a copper contact piece 8 to dissipate the heat and prevent damage to the insulation outside the weld. A steady pressure by a deadweight is augmented by a pneumatic shock load when a magnet retracts a latch on a lever and a piston compresses the air in a diaphragm cylinder. The moment when the pulse welding current is switched on it governed by the adjustable position of a micro-switch relative to the lever. 30.10.67. as 1194056/25-27. R.B.RUDZIT et alia. Riga Polytechnic. (17.6.69.) Bul.7/3,2.69. Class 21n. Int.Cl. B23k.

AUTHORS: Rudzit, R. B.; Bumbiyeris, E. V.; Moskvin, E. G.

i/2 Rizhskiy Politekhnicheskiy Institut

19741935

AA004044



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1) Источнику импульса
сборочного пистолета

6.0

Acc. Nr.: AP0046760

Ref. Code: UR0125

USSR

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UDC 621.791.75:546.56+669.35.24

RUDZIT, R., B., KALEYS, M. A.

"Effect of Dynamics of the Compression Mechanism on Heat Concentration during T-Type Percussion Welding"

Kiev, Avtomaticheskaya Svarka (Automatic Welding), No 1, 1970, pp 49-52
(from Avtomaticheskaya Svarka, No 1, 1970, p 80)

Translation: This article contains a study of T-type percussion welding of rods and plates using the compression mechanism with different dynamic properties. It is demonstrated that by changing the free electrode acceleration it is possible to regulate the heating concentration in the contact. There are 6 illustrations and a 4-entry bibliography.

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Reel/Frame
15790064

Luminescence

USSR

UDC: 541.183 + 535.37

RGGINSKIY, S.Z. (DECEASED) and RUFOV, YU.N., Institute of Chemical Physics,
Moscow, Academy of Sciences USSR

"Adsorption Luminescence and Other Forms of Luminescence Upon Contact of Gases
with Solids"

Moscow, Kinetika i Kataliz, Vol 11, No 2, Mar-Apr 70, pp 383-394

Abstract: Results obtained in the study of interactions of gas molecules with solid surfaces are reviewed and considered. Upon contact of gases with solid surfaces, two types of luminescence may be assumed to occur, luminescence associated with adsorption and unspecific luminescence of the solid produced by the impact of gases impinging on the solid with a certain momentum. Adsorption luminescence has been studied in detail in connection with the interaction of gas molecules (specifically those of O₂) with NiO, MgO, and NiO-MgO solid solutions. Adsorption luminescence associated with the catalytic reactions of oxidation of H₂ and MeOH and the decomposition of N₂O on these metal oxides was also investigated. Un-specific luminescence is not due to chemisorption, but charging of the surface by the gas flow and electric discharge phenomena at centers that form during the heat treatment of solids. The gas and surface charging and phenomena of this type taking place at excited centers under the effect of the gas must play a definite role in catalysis.

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172 022

UNCLASSIFIED

PROCESSING DATE--02 OCT 70

TITLE--FIBERS FORMING PROPERTIES OF GRAFT COPOLYMERS OF POLYACRYLONITRILE--
AND THEIR MIXTURES WITH HOMOPOLYMERS --I--
AUTURE--(64)--PIGRANYAN, T.SH., PENKOVA, E.P., LIVSHITS, R.M., RUDENIN, Z.A.

COUNTRY OF INFO--USSR

R

SOURCE--Khim. VOLOKNA 1970, (2) 25-7

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--POLYACRYLONITRILE FIBER, COPOLYMER, CELLULOSE RESIN,
THIUCYARATE, POLYMER KHEOLOGY, BENDING STRENGTH, ABRASION RESISTANCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1513

STEP NO--UR/0183/70/006/002/0025/0027

CIRC ACCESSION NO--AP0112507

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--02 OCT 70

272 - 822
CIRC ACCESSION NO--AP0112507
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FIBER FORMING PROPERTIES OF
POLYACRYLONITRILE (I)-NA CM CELLULOSE GRAFT COPOLYMERS (III), PREPD. IN
THE PRESENCE OF Fe PHMEZ POSITIVE AND H SUB2 O SUB2, AND THEIR MIXTS.
WITH I W/AT COMPARED. FIBERS WERE FORMED BY USE OF PPTG. BATHS OF Aq.
NACNS FOR I AND THE I-III MIXTS OR CACL SUB2 BATHS FOR III. RHEOL.
PROPERTIES OF POLYMER SOLNS. ARE COMPARED. ALTHOUGH MOST OF THE PHYS.
PROPERTIES OF THE III FIBERS WERE UNSATISFACTORY, FIBERS FROM THE
I-III MIXTS. EXCEEDED I FIBERS IN ARRASION RESISTANCE AND BENDING
STABILITY. THE MOISTURE ABSORPTIVITY OF THE MODIFIED FIBERS WAS APPROX.
THAT OF COTTON.

UNCLASSIFIED

UDC 614.71

USSR

RUKAVISHNIKOV, A. I.

"Tasks for the Chemists in Protecting the Surrounding Atmosphere"

Kiev, Khimicheskaya Tekhnologiya, No 4 (70), Jul/Aug 73, pp 3-4

Abstract: The most noxious substances contaminating air are the exhaust gasses from chemical industry -- hydrogen sulfide and sulfur dioxide. Therefore this area is the prime target of action for purer air. Both the Central Committee of the Ukrainian Communist Party and the Soviet of Ministers of the Ukrainian SSR agreed to promote measures for preservation of the air reservoir. In spite of a series of such measures being already operative, many cities have considerable levels of air pollution. It is believed that only systematic adherence to the precautionary measures will yield positive results.

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USSR

UDC 632.937

RUKAVISHNIKOV, B. I.

"Integrated Systems of Plant Protection From the Aspect of the Utilization
of Chemical Pest Control Methods"

Moscow, Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva imeni D. I. Mendeleyev,
Vol 18, No 5, 1973, pp 533-544

Abstract: A review with 113 references. The author concentrates on the basic advantages and disadvantages of the chemical control methods for agricultural pests. A stress is made of the importance of this method in integrated systems of plant protection, which are based on selective approaches to the control of each complex of pests, agricultural commodity and soil-climatic zones.

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USSR

UDC: 621.315.592

VUL, B. M., IVANOV, V. S., RUKAVISHNIKOV, V. A., SAL'MAN, V. M.,
and CHAPNIN, V. A., P. N. Lebedev Physics Institute, Moscow

"Characteristics of Cadmium Telluride Doped With Iron"

Leningrad, Fizika i tekhnika poluprovodnikov, No 7, 1972, pp
1264-1267

Abstract: The electrical characteristics, photoconductivity, absorption, and electrical absorption in CdTe doped with Fe are considered. The iron impurity was introduced, in the experiments described, into the CdTe by diffusion annealing at 950° C for 50-100 hours in quartz ampoules exhausted to a pressure of 10^{-4} mm Hg or under the pressure of saturated Cd vapors. To investigate the effect of the iron impurity, measurement of the Hall constant and electrical conductivity was made in the $80-400^{\circ}$ K temperature range, and the photoconductivity and absorption as well as the electrical absorption as functions of the photon energy were studied. Curves are plotted for the absorption coefficient as a function of photon energy at temperatures of 300, 90, and 20° K, and for electron concentration and mobility as functions of the

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VUL, B. M., et al, Fizika i tekhnika poluprovodnikov, No 7, 1972,
pp 1264-1267

temperature. The electron mobility curve shows an anomalous characteristic in the 150-250° K range, where the mobility takes a sharp jump. The authors note that this peculiarity cannot be explained by traditional mechanisms and should be further explored.

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- 87 -

USSR

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UDC 621.396.6-181.5(086.6)

BZHOLOVSKIY, M. G., RUKAVISHNIKOV, V. V., KRYLOVA, V. Ye., SHAL'NOV, S. N.

"A Device for Welding Bulk Conductors to the Contact Areas of Solid Circuits"

USSR Author's Certificate No 259208, Filed 26 Jun 68, Published 28 Apr 70 (from
RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10V166 P)

Translation: A device is proposed for welding bulk conductors to the contact areas of microcircuits. To simplify the operation, increase productivity and improve welding quality, the holder fork and welding electrode are fastened to two levers which are interconnected and move simultaneously, the travel of these levers being varied by means of a regulating screw.

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USSR

KIKVIDZE, R. R., KOTETESHVILI, G. G., RUKHADZE, A. A., Physics Institute imeni P. N. Lebedev, Academy of Sciences of the USSR, Moscow

"Interaction Between an Electron Beam and the Plasma of a Solid"

Leningrad, Fizika Tverdogo Tela, Vol 15, No 2, Feb 73, pp 622-623

Abstract: In a previous paper (Fizika Tverdogo Tela, Vol 14, 1972, p 2231) the authors showed that the longitudinal waves excited by a nonrelativistic electron beam in the plasma of a solid are the normal modes with accuracy to terms of the order of $v_0/c \ll 1$. Axially symmetric modes with $l=0$ were treated there for the sake of simplicity. In this paper the authors study excitation of arbitrary electromagnetic waves with $l \neq 0$ in the absence of an external magnetic field. Using Maxwell's equations and the expression for the operator of the tensor of permittivity, they derive differential equations for the fields E and B. It is shown that the mode with largest Z has maximum efficiency of conversion, which is determined from the condition of smallness of transverse diffusion. The efficiency of conversion for axially asymmetric modes increases with a reduction in $\omega_0 a/v_0$.

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- 42 -

USSR

UDC: 533.95

RUKHADZE, A. A. and CHOGOVADZE, M. Ye., P. N. Lebedev Physics Institute, Moscow

"Interaction of Single-Energy, Nonrelativistic Electron Beams With Surface Potential Plasma Oscillations"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, No 2, 1973, pp 256-265

Abstract: It is the authors' contention that linear theory of the interaction of charged particles with plasma and the excitation of characteristic electromagnetic oscillations is inferior to a quasi-linear theory. The authors also consider it more important to examine the interaction of the electron beam and the surface oscillations -- the latter defined as oscillations which die away from the interface surface -- than the interaction of the beam and the voluminal oscillations, since the latter may not emerge from the interaction space. Furthermore, they find that excitation of surface potential oscillations occurs only for nonrelativistic electron velocities and so confine this article to the effects of a single-energy, nonrelativistic electron beam. It is assumed, in this theoretical treatment, that the diameter of the beam is fixed and is identical with that of the plasma and that the plasma is limited by a vacuum or a dielectric surface.

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USSR

UDC: 621.384.6.01

BOGDANKEVICH, L. S., RUKHADZE, A. A., and TARAKANOV, V. P.

"Limiting Currents in Electron Beams With Relativistic Energy Dispersal"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, No 4, 1972, pp 900-901

Abstract: The problem of limiting currents and the stability of a compensated electron beam with relativistic energy dispersal of the particles in a strong longitudinal magnetic field inside a cylindrical drift space is investigated in this brief communication. The condition for this analysis is $T \gg mc^2$, where T is the effective temperature characterizing the energy dispersal of the beam, m is the mass of the particle, and c is the velocity of light. In two earlier papers (ZhETF, 57, 1969, p 331; UFN, 103, 1971, p 609) the first two authors named above proposed a general method for determining the limiting current based on the condition of electrostatic instability in the beam. However, since heavy-current electron beams in accelerators may have large energy variations, the authors used the approach of the present communication. They thus conclude that the value of the limiting current increases in comparison with the single-energy beam by T/mc^2 times. They are associated with the P. N. Lebedev Physics Institute in Moscow.

USSR

KIKVIDZE, R. R.; KOTETESHVILI, V. G.; RUKHADZE, A. A., (Lebedev Physics Institute of the USSR Academy of Sciences, Moscow)

"Perturbation of Longitudinal Electromagnetic Waves by an Electron Beam in the Plasma of a Solid"

Leningrad, Fizika Tverdogo Tela, January, 1972, pp 183-6

Abstract: The authors studied the possibility of the generation and amplification of longitudinal electromagnetic waves by means of an electron beam passing through a cylindrical aperture in a solid specimen, with and without an external longitudinal magnetic field. The effect of the dissipative mechanism of scattering of current carriers in the solid on the development of instability was determined. It was shown that perturbation of oscillations is possible not only under conditions in which the increment of increase is larger than the effective frequency of collisions of free carriers but also in the opposite case. In the latter case there is already a spectrum of perturbed oscillations. The threshold points of the electron beam above which the development of an instability takes place were determined. An evaluation of the amplitude of the non-linear oscillations occurring was made.

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USSR

RUKHADZE, A. A.; RUKHLIN, V. G. (Lebedev Physics Institute of the USSR Academy of Sciences)

"Injection of a Relativistic Electron Beam into a Plasma"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki; July, 1971; pp 177-89

ABSTRACT:

The response of a plasma to injection of a low-density relativistic electron beam is investigated. It is shown that if $r_0 > c/\omega_p$, where r_0 is the beam radius and ω_p the plasma frequency, all plasma perturbations are localized in the region of the electron beam itself; all currents induced in the plasma tend to compensate the magnetic field of the beam, facilitating in this way its injection into the plasma. If the beam injection time $\tau > \tau_0 = v^{-1}(r_0\omega_p/c)^2$, where v is the plasma electron collision frequency, then magnetic field compensation occurs at distances $z < z_0 = ut_0$ from the front of the beam, u being the directed electron velocity. Hence, in the case of a high-current electron beam, when the magnetic energy of the beam current exceeds the electron kinetic energy, easy injection is possible only in a dense plasma, providing $\omega_p > c/r_0$ and $\tau < \tau_0$.

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USSR

UDC: 538.4

ALEKSANDROV, A. F., KUZOVTSEV, A. A., RUKHADZE, A. A., and
SEVER'YANOV, V. V.

"Average Force Acting on a Non-Isothermic Plasma in a High-Frequency Field"

V sb. Vopr. fiz. nizkotemperaturn. plazmy (Problems in the Physics of Low-Temperature Plasmas -- collection of works) Minsk, "Nauka i tekhn." 1970, pp 144-148 (from RZh-Mekhanika, No. 2, Feb 71, Abstract No. 2B43)

Translation: The problem of the interaction of a high-frequency field with a plasma is considered on the basis of the model of two-fluid hydrodynamics. The average force acting on the plasma is represented as a surface and volume force. It is shown that, at low frequencies of the field, the surface force is much greater than the volume force; at frequencies close to the Langmuir frequency for ions, the volume force is comparable with the surface force. Author's abstract

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USSR

UDC 533.9

BOGDANKEVICH, L. S., and RUKHADZE, A. A., Physics Institute imeni P. N. Lebedev, Academy of Sciences USSR

"Stability of Relativistic Electron Beams in a Plasma and the Problem of Critical Currents"

Moscow, Uspekhi Fizicheskikh Nauk, No 4, Apr 71, pp 609-640

Abstract: Recent research in high-current electron accelerators, which have become a subject of renewed interest due to recently expressed ideas concerning using powerful relativistic electron beams to induce controlled thermonuclear reactions and for energy transmission over great distances, is surveyed. Topics covered include limiting currents in uncompensated electron beams, critical currents in compensated unbounded electron beams, the effect of finite longitudinal dimensions of the system on critical currents in the electron beams, the interaction of an unbounded relativistic electron beam with a plasma, the stability of a bounded electron beam in a plasma, and critical currents of relativistic electron beams in a plasma. It is shown that the instability of an electron beam passing through an ion shell determines the limiting current in a compensated electron beam. In the case of nonrelativistic beams this current is only several times greater than the vacuum

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USSR

BOGDANKEVICH, L. S., and RUKHADZE, A. A., *Uspekhi Fizicheskikh Nauk*, No 4, Apr 71, pp 609-640

limiting current determined by the space charge of electrons of the beam. The situation is different in the case of relativistic energies of beam electrons. It is shown that the critical current in a relativistic compensated beam can exceed the vacuum current by a factor of $(E/mc^2)^2$, where E is the energy of the electrons. It is noted that this rise in current is possible only when current-convective instability does not develop in the system. The theory of the stability of electron beams in a plasma is examined from the aspect of explaining those critical parameters of the plasma and beam under which some form of collective interaction arises in the bounded system. As regards systems with an overcompensated electron beam, it is shown that in the interaction of a relativistic electron beam with a plasma the relative loss of beam energy to excitation of oscillations is of the order of $(E/mc^2)(n_1/n_2)^{1/3}$, where n_1 and n_2 are electron densities in the beam and in the plasma, respectively. When this quantity is small, energy losses of the beam and the energy spread of the electrons are slight, and despite the fact that conditions for the development of instability are fulfilled in the system, the beam passes through the plasma practically without change. It is 2/3

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BOGDANKEVICH, L. S., and RUKHADZE, A. A., Uspekhi Fizicheskikh Nauk, No 4,
Apr 71, pp 609-640

stated that in this case one should speak about critical currents in the system, as distinct from the case of strictly compensated beams, when the beam loses a considerable portion of its energy as a result of the development of Buneman instability and undergoes essential changes, so that critical currents in compensated beams are simultaneously limiting currents. The final section of the survey is devoted to a comparison between theoretical ideas developed and experiments on the interaction of electron beams with the plasma formed by them.

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- 98 -

USSR

UDC: 533.951

ZYUNDER, D. and RUKHADZE, A. A.

"Theory of Parametric Electrostatic Wave Excitation in a Fully Ionized Plasma"

Gor'kiy, Izvestiya VUZ--Radiofizika, Vol 14, No 1, 1971, pp 36-43

Abstract: This paper considers the stability of a relatively dense and fully ionized plasma in an external weak uhf field. The assumption is made that the oscillation wavelength is much smaller than the dimensions of the system and the nonuniformity in the uhf field, but is greater than the length of the mean free path of the particles. The case of parametric interaction of the uhf field with the plasma when the frequency of the field is close to the electron Langmuir frequency is examined, since it is in this case that a variation in the plasma oscillations can occur even at relatively low uhf field intensities. The basic problem of the article is to determine the threshold values of the uhf field intensity corresponding to the excitation of the various modes of electrostatic oscillation in the plasma, and find the increments of instability near the thresholds. The authors show that aperiodic as well as periodic instabilities can occur in hydrodynamic as well as in kinetic oscillation regions.

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1/2 030 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--INTERACTION OF RELATIVISTIC ELECTRON BEAMS WITH THE PLASMA AND THE
PROBLEM OF CRITICAL CURRENTS -U-
AUTHOR-(02)-BOGDANKEVICH, L.S., RUKHADZE, A.A.

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COUNTRY OF INFO--USSR

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SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRON BEAM, ELECTRON PLASMA, PLASMA INTERACTION, PLASMA
STABILITY

CONTROL MARKING--NO RESTRICTIONS

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PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AT0127041

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AIM OF THEORETICAL STUDIES IN THE FIELD OF ELECTRON BEAM PLASMA INTERACTIONS IS THE CLARIFICATION OF THE CRITICAL PLASMA AND BEAM PARAMETERS THAT CAUSE INTERACTION WITHIN A LIMITED SYSTEM. FOR THIS REASON, THE BEHAVIOR OF AN ELECTRON BEAM WITHIN AN EQUIPOTENTIAL DRIFT SPACE ALONG THE AXIS OF A METALLIC WAVEGUIDE WAS EXAMINED. THE CRITICAL CURRENTS THAT MAY PASS THROUGH SUCH A SYSTEM MAY BE DETERMINED ON THE BASIS OF THE STABILITY CONDITIONS OF THE ELECTRON BEAM, OR ITS PASSAGE THROUGH THE COMPENSATION IONIC BACKGROUND OR THROUGH THE MORE DENSE PORTIONS OF THE PLASMA; THIS REQUIRED A MORE DETAILED STUDY OF THE BEAM STABILITY. THE INVESTIGATION INVOLVED AN EXAMINATION OF THE BOUNDARY CURRENTS IN NONCOMPENSATED ELECTRON BEAMS, CRITICAL CURRENTS IN COMPENSATED, UNLIMITED BEAMS, THE EFFECT OF THE LONGITUDINAL DIMENSIONS OF THE SYSTEM ON THE CRITICAL CURRENTS IN THE ELECTRON BEAMS, THE INTERACTION OF RELATIVISTIC ELECTRONS WITH THE PLASMA, THE STABILITY OF THE BEAMS IN THE PLASMA, AND CRITICAL CURRENTS OF RELATIVISTIC ELECTRON BEAMS IN THE PLASMA. IT WAS CONCLUDED THAT WHEN THE ELECTRON BEAM CURRENT IS LOWER THAN BOTH THE CRITICAL CURRENT OF THE COMPENSATED BEAM AND THE BOUNDARY CURRENT OF THE NONCOMPENSATED BEAM, NO INSTABILITY IS GENERATED IN THE SYSTEM AT THE NEUTRALIZED STAGE.

FACILITY: AKADEMIYA NAUK SSSR, MOSCOW.

INSTITUT FIZIKI.

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PROCESSING DATE--23OCT70

TITLE--INVESTIGATION OF THE HIGH FREQUENCY INSTABILITY THRESHOLD IN THE
INTERACTION BETWEEN AN ELECTRON BEAM AND PLASMA -U-

AUTHOR-(04)-BOGDANKEVICH, L.S., RAYZER, M.D., RUKHADZE, A.A., STRELKOV,
P.S.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
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SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRON BEAM, PLASMA INTERACTION, PLASMA STABILITY, ELECTRON
DENSITY, EXTERNAL MAGNETIC FIELD, PLASMA DENSITY, PLASMA OSCILLATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/1486

STEP NO--UR/0056/70/058/004/1219/1233

CIRC ACCESSION NO--AP0106242

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PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0106242

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CRITICAL PLASMA DENSITY FOR WHICH HIGH FREQUENCY INSTABILITY ARISES IN THE PLASMA BEAM SYSTEM IS DETERMINED EXPERIMENTALLY. THE DEPENDENCE OF THE CRITICAL DENSITY ON THE ELECTRON BEAM DENSITY, MAGNITUDE OF EXTERNAL MAGNETIC FIELD AND GEOMETRICAL DIMENSIONS OF THE SYSTEM IS INVESTIGATED. THE THRESHOLD CONDITIONS FOR EXCITATION OF ELECTROSTATIC OSCILLATIONS, DERIVED FROM AN ANALYSIS OF THE DISPERISON EQUATION FOR A RESTIRCTED PLASMA BEAM SYSTEM, AGREE WITH THE EXPERIMENTAL DATA. A COMPARISON BETWEEN THE THEORY AND EXPERIMENT SHOWS THAT IN THE GIVEN EXPERIMENTAL CONDITIONS THE CRITICAL VALUES OF THE PLASMA DENSITY CORRESPOND TO EXCITATION OF AXIALLY SYMMETRIC OSCILLATION MODES.

FACILITY: FIZICHESKIY INSTITUT IM.

P. N. LEBEDEVA, AN SSSR.

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--09OCT70

TITLE--ANOMALOUS ABSORPTION OF CYCLOTRONIC WAVES IN A BOUNDED PLASMA -U-

AUTHOR--(02)-BOGDANKEVICH, L.S., RUKHADZE, A.A.

COUNTRY OF INFO--USSR

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SOURCE--ZHURNAL TEKHNICHESKOI FIZIKI, VOL. 40, JAN. 1970, P. 10-17

DATE PUBLISHED--70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CYCLOTRON RESONANCE, RESONANCE ABSORPTION, RAREFIED PLASMA,
ELECTRON OSCILLATION, HIGH TEMPERATURE PLASMA, LOW TEMPERATURE PLASMA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
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CIRC ACCESSION NO--AP0046343

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PROCESSING DATE--09OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE ABSORPTION OF CYCLOTRONIC WAVES IN A BOUNDED, RAREFIED PLASMA UNDER CONDITIONS WHEN THE LARMOR ELECTRON FREQUENCY SUBSTANTIALLY EXCEEDS THAT OF THE PLASMA. A STUDY IS MADE OF SEVERAL CASES OF HIGH TEMPERATURE, COLLISIONLESS PLASMA, AND COLD PLASMA WITH A HIGH COLLISON NUMBER. USING THE DEVELOPED THEORY, AN EVALUATION IS MADE OF THE EXPERIMENTS MADE BY BUDNIKOV ET AL (1967) AND AKULINA ET AL (1969) WHICH INVOLVED THE ABSORPTION OF CYCLOTRONIC WAVES IN A BOUNDED PLASMA. FACILITY: AKADEMIIA NAUK SSSR, FIZICHESKII INSTITUT, MOSCOW, USSR.

UNCLASSIFIED

USSR

BOGDANKEVICH, L. S.; ZHELYAZKOV, I. I.; RUKHADZE, A. N. (Lebedev Physics Institute, USSR Academy of Sciences)

"Critical Currents of Relativistic Electron Beams"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki; July, 1969; pp 315-20

ABSTRACT: The question of critical currents of relativistic electron beams in drift space is considered. It is shown that for a relativistic, noncompensated beam the limiting current, restricted by the spatial charge, increases linearly with an increase in the electron energy. In compensated beams the critical currents are determined from the condition of electrostatic instability arising in the system. In this case, with an increase of electron energy in the relativistic region critical currents increase with energy as δ^3 , making it possible to obtain higher currents in compensated relativistic electron beams.

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3413 (AEC-tr-7073) ANOMALOUS ABSORPTION OF CYCLOTRON WAVES IN CONFINED PLASMA. Bogdankevich, L. S.; Rukhadze, A. A. (Akademiya Nauk SSSR, Moscow, Institut Fiz. Nauk). Translation of Russian preprint No. 72. 20p. Dep. CFSTI.

The absorption of the cyclotron electron waves in a confined and rarefied plasma was investigated when the Larmor frequency of electrons exceeded considerably that of the plasma. Under such conditions the extraordinary cyclotron wave is absorbed rather strongly in a spatially unlimited plasma, while the ordinary wave is practically not absorbed at all. In a limited plasma (for example, a waveguide filled with plasma), due to the interaction of waves at the plasma boundary, absorption of the ordinary waves may become anomalously high if the wave length is of the order of the plasma dimension. At this, the absorption factor becomes an oscillating function of the wave length and system dimensions. Cases of high-temperature plasma without collisions and of cold plasma with a great number of collisions were examined. Recent experiments on absorption of the cyclotron waves in a limited plasma are discussed on the basis of the newly developed theory.
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BOGDANKEVICH, L. S., RUKHADZE, A. A., Physics Institute imeni P. N. Lebedev of
the Academy of Sciences USSR, Moscow

"Anomalous Absorption of Cyclotron Waves in a Bounded Plasma"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 40, No 1, Jan 70, pp 10-17

Abstract: The absorption of electron cyclotron waves in a bounded rarefied plasma is investigated under conditions when the Larmor frequency of the electrons is considerably greater than the plasma frequency. Under these conditions in a spatially unbounded plasma the extraordinary cyclotron wave is very strongly absorbed while an ordinary wave is practically not absorbed. In a bounded plasma, such as a waveguide filled with plasma, the absorption of an ordinary wave may become anomalously high due to the interaction of waves at the boundary of the plasma if the wavelength is of the order of the plasma dimensions. The absorption coefficient is then an oscillating function of the wavelength and the dimensions of the system. The cases of a high-temperature collisionless plasma and a cold plasma with a large number of collisions are considered. Recent experiments on the absorption of cyclotron waves in a bounded plasma are discussed on the basis of the theory developed. The experiments were conducted in a rarefield plasma

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